

October 31, 1996--

Page 3, lines 17-18, please delete "sequences shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226" and replace therefor -- sequence shown as SEQ ID NO:2 --.

Line 21, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide --.

Lines 22-23, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide--.

Page 4, line 5, please delete "any of the polypeptides " and replace therefor --the polypeptide--.

Page 5, line 10, please delete "one or more of the polynucleotides or polypeptides" and replace therefor --the polynucleotide and polypeptide--.

Line 22, please delete "amino acid sequences" and replace therefor --the amino acid sequence--.

Line 23-24, please delete "amino acid sequences" and replace therefor --the amino acid sequence--.

Lines 28-29, please delete ", SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225) which are" and replace therefor --) which is --.

Page 7, line 16, please delete "of one or more of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 26, please delete "113 open reading frames (ORFs)" and replace therefor --one open reading frame (ORF)--.

Line 31, please delete "polypeptides" and replace therefor --polypeptide--.

Line 32, please delete "each" and replace therefor --the--.

Line 34, please delete "each" and replace therefor --the--.

Line 36, please delete "SP126" and replace therefor --SP036--.

Line 37, please delete "126" and replace therefor --036--.

Line 38, please delete "SP126" and replace therefor --SP036--.

BEST AVAILABLE COPY

Page 8, line 1, please delete "SEQ ID NO:223" and replace therefor --SEQ ID NO:1--.

Line 2, please delete "SEQ ID NO:224" and replace therefor --SEQ ID NO:2--.

Lines 8-9, please delete "each of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 9, please delete "Each" and replace therefor --The--.

Line 16, please delete " "Lys-1 to Ile-10" of SP001, represents a peptide comprising the lysine at position 1 in SEQ ID NO:2 through and including the isoleucine at position 10 in SEQ ID NO:2, but may include more or fewer residue than those 10" and replace therefor -- "Arg-10 to Arg-17" of SP036, represents a peptide comprising the arginine at position 1 in SEQ ID NO:2 through and including the arginine at position 17 in SEQ ID NO:2, but may include more or fewer residues than those 8.--

Line 24, please delete "each" and replace therefor --the--.

Line 37, please delete "many of the ORFs disclosed herein were" and replace therefor --the ORF disclosed herein was--.

Page 11, line 8, please delete "a number of the disclosed ORFs" and replace therefor --the disclosed ORF--.

Lines 14-16, please delete "polypeptides having the amino acid sequences described in Table 1 and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226, which were" and replace therefor --polypeptide having the amino acid sequence described in Table 1 and shown as SEQ ID NO:2, which was--.

Page 12, lines 30-33, please delete "SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225; DNA molecules comprising the coding sequences for the polypeptides described in Table 1 and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226;" and replace therefor --DNA molecules comprising the coding sequences for the polypeptide described in Table 1 and shown as SEQ ID NO:2;--.

Page 13, line 2, please delete "any one of those" and replace therefor --that--.

Line 13, please delete "most, if not all, of a" and replace therefor --the--.

Line 17, please delete "nucleotide sequences identified in Table 1 are provided as

BEST AVAILABLE COPY

SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225," and replace therefor --nucleotide sequence identified in Table 1 is provided as SEQ ID NO:1,--.

Line 23, please delete "polypeptides" and replace therefor --polypeptide--.

Line 26, please delete "each" and replace therefor --the--.

Line 28, please delete "polypeptides" and replace therefor --polypeptide--.

Page 14, line 11, please delete "most, if not all, of".

Line 14, please delete "sequences" and replace therefor --sequence--.

Line 24, please delete "SEQ ID NO:3, SEQ ID NO:5, and so on through SEQ ID NO:225,"

Page 15, line 1, please delete "residues" and replace therefor --residue--.

Line 16, please delete "residues" and replace therefor --residue--.

Lines 30-31, please delete "(e.g., another sequence selected from Table 1)".

Line 34, please delete "polypeptides" and replace therefor --polypeptide--.

Page 16, line 11, please delete "substitution" and replace therefor --substitutions--.

Line 17, please delete "any of the amino acid sequences of the polypeptides" and replace therefor --the amino acid sequence of the polypeptide --.

Line 19, please delete "any of the nucleotide sequences" and replace therefor --the nucleotide sequence--.

Line 36, please delete "some of the nucleic acid sequences" and replace therefor --the nucleic acid sequence--.

Page 17, line 23, please delete "sequences" and replace therefor --sequence--.

Line 34, please delete "these nucleotide sequences" and replace therefor --the nucleotide sequence--.

Page 21, lines 24-25, please delete "sequences described in Table 1, and shown as SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, and so on through SEQ ID NO:226" and replace therefor --sequence described in Table 1, and shown as SEQ ID NO:2--.

Line 34, please delete "polypeptides" and replace therefor --polypeptide--.

BEST AVAILABLE COPY

Page 22, line 3, please delete "epitopes for each polypeptide is delineated" and replace therefor --epitopes for the polypeptide are delineated--.

Line 10, please delete "polypeptides" and replace therefor --polypeptide--.

Line 14, please delete "polypeptides" and replace therefor --polypeptide--.

Line 15, please delete "any one of the polypeptides" and replace therefor --the polypeptide--.

Page 23, line 7, please delete "sequences shown in Table 1 may have on" and replace therefor --sequence shown in Table 1 may have one--.

Page 25, line 15, please delete "sequences" and replace therefor --sequence--.

Line 20, please delete "polypeptides" and replace therefor --polypeptide--.

Page 29, line 18, please delete "sequences" and replace therefor --sequence--.

Page 32, line 4, please delete "polypeptides" and replace therefor --polypeptide--.

Page 36, line 26, please delete "more than one of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 27, please delete "one or more, for example 2 to 10, of the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 35, please delete "ofS." and replace therefor --of *S.* --.

Line 35, please delete "that" and replace therefor --the--.

Page 37, line 1, please delete "one or more the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Line 2, please delete "the *S. pneumoniae* polypeptides" and replace therefor --the *S. pneumoniae* polypeptide--.

Page 41, line 32, please delete "sequences" and replace therefor --sequence--.

Line 41, please delete "polypeptides" and replace therefor --polypeptide--.

BEST AVAILABLE COPY

Line 37, please delete "polypeptides" and replace therefor --polypeptide--.

Page 42, line 8, please delete "polypeptides" and replace therefor --polypeptide--.

Line 15, please delete "NO:227 through SEQ ID NO:452" and replace therefor --
NO:3 thorough SEQ ID NO:4--

Line 20, please delete "sequences" and replace therefor --sequence--.

Page 43, line 4, please delete "4 C" and replace therefor --4°C--.

Line 24, please delete "sequences" and replace therefor --sequence--.

Line 28, please delete "Each of the polynucleotides" and replace therefor --The
polynucleotide--.

Lines 30-34, please delete "These pQE10 plasmids containing the DNAs of Table 1, except SP023, SP042, SP054, SP063, SP081, SP092, SP114, SP122, SP123, SP126, and SP127, were deposited with the ATCC as a pooled deposit as a convenience to those of skill in the art. This pooled deposit was desposited on October 16, 1997 and given ATCC Deposit No. 209369. Those of ordinary skill in the art appreciate that isolating an individual plasmid from the pooled deposit is trivial provided the information and reagents described herein. Each of the deposited clones is capable of expressing its encoded *S. pneumoniae* polypeptide."

Page 47, line 18, after "incorporated by reference" please insert --; however, U.S. Provisional Application Serial No. 60/029,960, filed October 31, 1996, is not incorporated by reference.--

Please delete Table 1, Table 2 and Table 3 at pages 48-110 and replace therefor with the following new Tables 1, 2 and 3:

BEST AVAILABLE COPY

Table 1

SP036 nucleotide (SEQ ID NO:1)

TTCTTACGAGTTGGGACTGTATCAAGCTAGAACGGTTAAGGAAAATAATCGTGTTCCTATATAGATGGAAAAACA
AGCGACGCCAAAAACGGAGAATTTGACTCCTGATGAGGTTAGCAAGCGTGAAGGAATCAATGCTGAGCAAATCGT
CATCAAGATAACAGACCAAGGCTATGTCACTTCACATGGCGACCACCTATCATTATTACAATGGTAAGGTTCCCTTA
TGACCGTATCATCAGTGAAGAATTACTCATGAAAGATCCAACTATAAGCTAAAAGATGAGGATATTGTTAATGA
GGTCAAGGGTGGATATGTTATCAAGGTAGATGGAAAATACTATGTTTACCTTAAGGATGCTGCCACGCCGATAA
CGTCCGTACAAAAGAGGAAAATCAATCGACAAAAACAAGAGCATAGTCAACATCGTGAAGGTGGAACCTCAAGAAA
CGATGGTGTCTGTTGCCCTTGGCAGCTTCGCAAGGACGCTATACTACAGATGATGGTTATATCTTTAATGCTTCTGA
TATCATAGAGGATACTGGTGATGCTTATATCGTTCCCTCATGGAGATCATTACCATTACATTCCTAAGAATGAGTT
ATCAGCTAGCGAGTTGGCTGCTGCAGAAGCCTTCCTATCTGGTTCGAGGAAAATCTGTCAAATTCAGAACCCTATCG
CCGACAAAATAGCGATAACACTTCAAGAACAACCTGGGTACCTTCTGTAAAGCAATCCAGGAACCTACAATACTAA
CAACAGCAACAACAGCAACTAACAGTCAAGCAAGTCAAGTAATGACATTGATAGTCTCTTGAACAGCTCTA
CAAACCTGCCCTTTGAGTCAACGACATGTAGAATCTGATGGCCTTGTCTTTGATCCAGCACAAATCACAAGCTGAAC
AGCTAGAGGTGTTGCAGTGCCACACGGAGATCATTACCACTTCATCCCTTACTCTCAAATGTCTGAATTGGAAGA
ACGAATCGCTCGTATTATTCCTTTCGTTATCGTTCAAACCATTGGGTACCAGATTCAAGGCCAGAACCAACGAAG
TCCACAACCGACTCCGGAACCTAGTCCAGGCCCGCAACCTGCACCAAATCTTAAAATAGACTCAAATTCCTCTTT
GGTTAGTCAAGCTGGTACGAAAAGTTGGGGAAGGATATGTATTCGAAGAAAAGGGCATCTCTCGTTATGCTTTTGC
GAAAGATTTACCATCTGAACTGTTAAAAATCTTGAAGCAAGTTATCAAAACAAGAGAGTGTTCACACACTTT
AACTGCTAAAAAAGAAAATGTTGCTCCTCGTGACCAAGAATTTTATGATAAAGCATATAATCTGTTAACTGAGGC
TCATAAAGCCTTGTGTTGNAATAAAGGTCGTAATCTCATTTTCCAAAGCCTTAGACAAAATTTAGAACCGCTGAA
TGATGAATCGACTAATAAAGAAAAATTGGTAGATGATTATTGGCATTCCTAGCACCAATTACCCATCCAGAGCG
ACTTGGCAAACCAAATTCCAAATTGAGTATACTGAAGACGAAGTTCGTATTGCTCAATTAGCTGATAAGTATAC
AACGTCAGATGGTTACATTTTTGATGAACATGATATAATCAGTGATGAAGGAGATGCATATGTAACGCCCTCATAT
GGGCCATAGTCACTGGATTGGAAAAGATAGCCTTTCTGATAAGGAAAAGTTGCAGCTCAAGCCTATACTAAAGA
AAAAGGTATCCTACCTCCATCTCCAGACGCAGATGTTAAAGCAAATCCAACTGGAGATAGTGCAGCAGCTATTTA
CAATCGTGTGAAAGGGGAAAAACGAATCCACTCGTTCGACTTCCATATATGGTTGAGCATACAGTTGAGGTTAA
AAACGGTAATTGATTATTCTCTCATAGGATCAATTACCAATAATTAATTTGCTTGGTTTGGTATGATCACACATA
CAAAGCTCCAAATGGCTATACCTTGGAAAGATTGTTTGGCAGGATTAAGTACTACGTAGAACACCCTGACGAACG
TCCACATTCTAATGATGGATGGGGCAATGCCAGTGAGCATGTGTTAGGCAAGAAAGACCACAGTGAAGATCCAAA
TAAGAACTTCAAAGCGGATGAAGAGCCAGTAGAGGAACACCTGCTGAGCCAGAAGTCCCTCAAGTAGAGACTGA
AAAAGTAGAAGCCCAACTCAAAGAAGCAGAAGTTTTGCTTGGCAAAGTAACGGATTCTAGTCTGAAAGCCAATGC
AACAGAACTCTAGCTGGTTTACGAAATAATTTGACTCTTCAAATTATGGATAACAATAGTATCATGCGCAGAAGC
AGAAAAATTACTTGCCTTGTAAAAGGAAGTAATCCTTCATCTGTAAGTAAGGAAAAAATAAAC

SP036 amino acid (SEQ ID NO:2)

SYELGLYQARTVKENNRVSIDGKQATQKTENLTPDEVSKREGINAEQIVIKITDQGYVTSHGDEHYHYNGKVPY
DAIISELLMKDPNYKLKDEDIVNEVKGQYVIVKVDGKYVYVLKDAEADNVRTKEEINRQKQEHSQHREGGTPRN
DGAVALARSQGRYTTDDGYIPNASDIIEDTGDAYIVPEGDHYHYIPKNLSASELAAAEFLSGRGNLSNSRTYR
RQNSDNTSRTNWVPSVSNPGTTNTNTNSNSNTNSQASQNSDIDSLLKQLYKLPLSQREVESDGLVFPDPAQITSRT
ARGVAVPHGDHYHFIPIYSQMSLEERLARIIPLRYSNEWVPSRPEQSPQPTPEPSPGPQPAPNLKIDSNSSL
VSQLVKRVGEGYVFEKGISRYVFAKDLPSSETVKNLESKLSKQESVSHLTAKKENVAPRDQEFYDKAYNLLTEA
EKALFXNKGKNSDFQALDKLLERLNDESTNKEKLVDDLLAFLAPITHEPERLGKPNISQLEYTEDEVRIAQLADKYT
TSDGYIPDEHDIISDEGDAYVTPMGHSEHWIGKDSLSDEKVAQAQYTKKLGILPPSPDADVKNFTGDSAAAIY
NRVKGEKRIPLVRLPYMVEBTVEVKGNLIIPHKHNYENIKFAWFDDETYKAPNGYTTLEDLPATIKYVVEHEDER
PESNDGWNASEHVLGKDKHSEDPKNFKADEEPVEETPAEPEVPQVETKVEAQLKEAEVLLAKVTDSSLKANA
TETLAGLRNNTLQIMDNNSIMAEAEKLLALLKGSNPSSVSKEKIN

BEST AVAILABLE COPY

Table 2
***S. pneumoniae* Antigenic Epitopes**

SP036

Arg-10 to Arg-17; Lys-29 to Ser-39; Ser-140 to Ala-153; Arg-158 to Tyr-169; Asp-175 to Ala-183; Gly-216 to Asn-236; Ala-261 to Leu-270; Arg-282 to Phe-291; and Thr-297 to Ala-305; Pro-342 to Gln-362; Phe-455 to Asp-463; His-497 to Thr-511; Ala-521 to Gly-529; Ile-537 to Val-546; Ile-556 to Ala-568; Pro-581 to Ser-595; Glu-670 to Ala-685; Ser-696 to Ala-705 and Leu-782 to Ser-791.

Table 3

Primer				<i>S. pneumoniae</i> ORF Cloning Primers	
Name	SEQ ID	Sequence		RE	
SP036A	NO:3	AGTCGGATCCTTCTTACGAGTTGGGACTGTATCAAGC		Bam HI	
SP036B	NO:4	AGTCAAGCTTGTATTATTTTTCCTTACTTACAGATGAAGG		Hind III	

Please replace the pages of the Sequence Listing at pages 111-388 of the specification with the Substitute Sequence Listing (6 pages, numbered 1-6) submitted herewith.

Please renumber the pages accordingly.

In the claims:

Please amend the claims as follows:

— 198. (Amended) An isolated nucleic acid molecule comprising a polynucleotide selected from the group consisting of:

- (a) a polynucleotide encoding amino acids 1 to 796 of SEQ ID NO:[56]2;
- (b) a polynucleotide encoding amino acids 2 to 796 of SEQ ID NO: [56]2;
- (c) a polynucleotide encoding an epitope-bearing portion of amino acid residues 1 to 796 of SEQ ID NO: [56]2;
- (d) a polynucleotide probe encoding at least 15 contiguous amino acid residues of amino acid residues 1 to 796 of SEQ ID NO: [56]2;
- (e) a polynucleotide consisting of at least 50 contiguous nucleotides of nucleotides 1-2389 of SEQ ID NO: [55]1; and